ABSTRACT OF THE DISCLOSURE

Apparatus and process for etching semiconductor wafers and the like in which a substrate is supported by a pedestal within a chamber, and at least one gas capable of etching the substrate or a film material on the substrate is introduced into the chamber through a segmented gas injection element which is separated from the substrate by a distance approximately less than its size from which the distribution of the flow or mixture of gas can be altered spatially proximate to the substrate in a controlled and variable way, for each wafer or substrate if desired, by having a varying amount or mixture of gas flow to some or all of the segments such as to cause the etching rate distribution to vary across the substrate.